REMARKS

Claims 1, 6-10, 12 a 15 have been amended, claims 2-5, 11, 24 and 25 have been cance and new claims 26-28 have been added. Upon entry of thi mendment, claims 1, 6-10, 12-23 and 26-28 will be pending in t application.

Attached hereto is a rked-up ersion of the changes made by this amendment. The at ched pa s are captioned "Version With Markings to Show Cha s Made."

Supplemental Information D closure tatement

Applicants note that Supplemental Information Disclosure Statement was filed in co ction wi h the subject application on December 30, 2002.

Since the Supplemental Information Disclosure Statement was filed after the mailing da of the irst Office action on the merits, applicants hereby horize he Commissioner to charge payment of the fee under 3 C.F.R. \$ .17(p) in the amount of \$180.00 to Deposit Accoun . 19-13 5. A copy of our Fee Transmittal is enclosed.

Applicants request th the inf rmation submitted with the Supplemental Information D closure tatement be considered in connection with the subje application and a copy of the initialed Form PTO/SB/08A returne the with next communication from the Patent Office in nection with this application.

Allowable Subject Matter

Applicants acknowledg he indi ation of allowable subject matter in original depende claims , 9, 18 and 19.

Original dependent cl 8 has een rewritten in independent form as new claim 26. Acc ingly, pplicants respectfully submit that new claim 26 a new dep ndent claims 27 and 28 are in condition for allowance.

Rejections under 35 U.S.C. 102

Reconsideration is re ectfully requested of the rejection of claims 1-7 and 14 under 35 U.S.C. \$102(b) as being anticipated

by U.S. Patent No. 4,487,[illegible] (Gomez). Applicants submit that the invention defined in the claims as presently amended is novel and patentable over Gomez.

It has been observed that a strong, unpleasant odor is sometimes emitted from finished paper hand towels and other cellulosic paper products when the towels are wetted (i.e., re-wetted after final drying of the base sheet from which the towel is made). Malodor release upon re-wetting is particularly problematic in paper products made from cellulosic base sheets that have been through-air dried at relatively high air temperatures.

In accordance with the present invention, applicants have discovered that the introduction of certain borate compounds, particularly boric acid, into the aqueous suspension of paper-making fibers used to manufacture a cellulosic paper product reduces the generation of malodors once the dried paper product is re-wetted during use. Wet-laid webs formed from aqueous suspensions of papermaking fibers containing boric acid can advantageously be through-air dried at higher drying gas temperatures and shortened dryer residence times with concomitant improvement in process throughput and productivity, while significantly reducing malodor produced upon re-wetting the dried base sheets or finished cellulosic paper products made from the base sheets.

Independent claim 1, as amended, is directed to a process for making a cellulosic paper product and requires forming an aqueous suspension of papermaking fibers; introducing boric acid into the aqueous suspension; depositing the aqueous suspension onto a sheet-forming fabric to form a wet web; and through-drying the wet web by passing heated air through the wet web. Independent claim 15 is directed to a preferred embodiment of the present invention and includes the further requirement of introducing boric acid into the aqueous suspension prior to depositing the aqueous suspension onto the sheet-forming fabric.

Gomez discloses a two-step method for preparing a fibrous sheet by papermaking means. In step 1, an aqueous suspension of

papermaking fibers containing a flocculating agent (See Table IV) and an organic binder (See Table III) is prepared and formed into a sheet that is pressed and dried. In step 2, the sheet obtained is subjected, if necessary, to at least one complementary treatment dependent on the application envisaged for the sheet (See col. 3, lines 50-57; and col. 7, lines 7-10). The purposes of complementary treatment include, among others, to obtain fire-proofing of the sheet (See col. 7, lines 7-25). Suitable substances mentioned for use in a complementary treatment directed to fire-proofing include, among several others, boric acid (See col. 8, lines 39-48). The auxiliary agents used in the complementary treatments of step 2 are applied to the pressed and dried sheet by coating or impregnation (See col. 9, lines 25-29).

Contrary to the assertion on page 2 of the Office action, Gomez does not disclose introducing boric acid into the aqueous suspension of papermaking fibers as required in the claimed invention. Rather, the boric acid in Gomez is applied to the pressed and dried sheet obtained in step 1. Furthermore, Gomez does not disclose any details of the method used to dry the sheet, much less teach that the sheet be through-dried by passing heated air through the web as required in claim 1.

Accordingly, applicants respectfully submit that the invention defined in claim 1 as amended and claims depending therefrom is not anticipated by Gomez.

Rejections under 35 U.S.C. §103

Reconsideration is respectfully requested of the rejection of claims 10-13, 15-17 and 20-23 under 35 U.S.C. §103(a) based on the disclosure of Gomez in view of U.S. Patent No. 6,488,812 (Shannon, et al.). The invention defined in the pending claims is submitted as patentable over the disclosure of Gomez and Shannon.

All of the rejected claims now require that the web be through-dried by passing heated air through the web. As noted above, the problem of malodors released upon re-wetting of paper hand towels and other cellulosic paper products is particularly

present in paper products made from cellulosic base sheets that have been through-air dried. This phenomenon is perhaps due to the highly oxidative environment and unique mass transfer phenomena provided by the heated air stream passing through the wet-laid web of papermaking fibers.

The process disclosed by Gomez is discussed above. Not only does Gomez fail to teach through-air drying of the sheet as acknowledged in the Office Action, Gomez also does not disclose adding boric acid to the aqueous suspension of papermaking fibers as required in the claimed invention.

Shannon discloses a method of making a paper sheet which includes forming an aqueous suspension of papermaking fibers; depositing the suspension onto a sheet-forming fabric to form a web; and dewatering and drying the web to form a paper sheet. In accordance with the principal teaching of the disclosed method, a synthetic polymer having a portion of its structure derived from the polymerization of acrylamide and containing an aliphatic hydrocarbon moiety is added to the aqueous suspension of papermaking fibers. The synthetic polymer additive is said to reduce lint and slough in the paper sheet. Shannon discloses various ways of drying the web, including using a canvas under tension to hold the partially dewatered web or sheet against a steam heated, convex surface metal dryer maintained at 213°F (101°C) (See col. 11, lines 46-55) as well as by through-air drying using supply air heated to about 390°F (199°C) (See col. 14, lines 32-64).

Applicants respectfully submit that the Examiner's combination of Gomez and Shannon in an attempt to overcome the deficiencies of the primary reference fails to establish a *prima facie* case of obviousness with respect to the claimed invention.

In order to establish a *prima facie* case of obviousness, the Patent Office must establish among other things, that there is some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings and the prior art references when combined must teach or suggest all the claim limitations.

As noted above, Gomez teaches applying boric acid as a complementary treatment to impart fire-proof properties to the pressed and dried sheet obtained in step 1. Shannon contains no mention of boric acid. Accordingly, even if there existed a basis for combining the teaching of these two references, the combination would not result in the process as defined in the pending claims which requires that boric acid be introduced into the aqueous suspension of papermaking fibers.

Furthermore, at page of the Office action, the Examiner states that it would have been obvious to one of ordinary skill in the art to combine the teachings of Gomez and Shannon and through-air dry the sheet prepared in accordance with the primary reference because such a combination would provide additional means of drying of the web produced in the process of Gomez. However, applicants submit that the cited references, either alone or if combined, do not teach or suggest the claimed process requiring introducing boric acid into an aqueous suspension of papermaking fibers to inhibit potential malodors produced upon re-wetting a base sheet formed by through-air drying the wet web.

The application of boric acid to the pressed and dried sheet obtained in step 1 of Gomez has nothing to do with odor control, but instead is solely for the purpose of imparting fire-proof characteristics to the sheet. Nothing in the primary reference teaches or suggests that through-air drying be employed, much less that treatment with boric acid be selected from the list of complementary treatments disclosed to combat odor problems upon re-wetting of the through-air dried product. Although Shannon does disclose through-air drying of a web during a papermaking process, the reference also discloses drying a partially dewatered sheet by holding it against a steam heated metal surface with no teaching whatsoever that would motivate one of ordinary skill in the art to choose one method over the other. More importantly, like the primary reference, Shannon fails to recognize odor problems attendant re-wetting through-air dried cellulosic paper products and would in no way teach or suggest that the application of boric acid to the pressed and dried sheet

obtained in step 1 of Gomez for fire proofing would somehow have possible application in combating such odor problems by introducing boric acid into the aqueous suspension of papermaking fibers.

In view of the above, applicants respectfully submit that the invention defined in independent claims 1 and 15 and claims 6-10, 12-14 and 16-23 depending therefrom are patentable over Gomez and Shannon.

Favorable reconsideration and allowance of all pending claims are respectfully solicited.

The Commissioner is requested to charge any fee deficiency in connection with this amendment to Deposit Account 19-1345.

Respectfully submitted,

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*Attachment/Enclosure

Transmitted via Facsimile to: 703-305-7115

KMC 4781 (K.C. No. 17,028)
PATENT

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

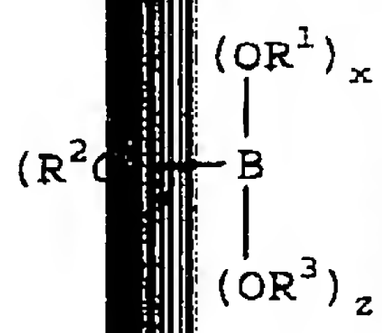
1. (amended) A process for manufacturing a cellulosic paper product, the process comprising:

forming an aqueous suspension of papermaking fibers;

introducing **[a borate compound]** **boric acid** into said aqueous suspension;

depositing said aqueous suspension onto a sheet-forming fabric to form a wet web; and

[dewatering and] **through-drying** said wet web **by passing heated air through said wet web**[, said borate compound comprising a compound of the formula:



wherein R^1, R^2 and R^3 are independently selected from the group consisting of hydrogen and saturated or unsaturated, substituted or unsubstituted, branched or straight chain hydrocarbyl moiety having from 1 to about 20 carbon atoms and x, y and z are integers ≥ 0 such that x + y + z = 3].

Claims 2-5 have been canceled.

6. (amended) A process as set forth in claim **[5]** **1** wherein said aqueous suspension has a pH of from about 5 to about 6 after said **[borate compound]** **boric acid** is introduced into said suspension.

7. (amended) A process as set forth in claim 6 wherein said aqueous suspension has a pH of about 5.5 after said **[borate compound]** **boric acid** is introduced into said suspension.

8. (amended) A process as set forth in claim **[5]** 1 wherein said **[borate compound]** **boric acid** is introduced into said aqueous suspension in an amount from about 5 to about 20% by weight of papermaking fibers present in said aqueous suspension.

9. (amended) A process as set forth in claim 8 wherein said **[borate compound]** **boric acid** is introduced into said aqueous suspension in an amount from about 10 to about 15% by weight of papermaking fibers present in said aqueous suspension.

10. (amended) A process as set forth in claim **[5]** 1 wherein **[said wet web is dried by passing heated gas through said wet web, said heated gas having a temperature of]** **the temperature of said heated air is** at least about 190°C.

Claim 11 has been cancelled.

12. (amended) A process as set forth in claim **[11]** 10 wherein the temperature of said heated air is from about 190° to about 210°C.

15. (amended) A process for making a cellulosic paper product, the process comprising:

forming an aqueous suspension of papermaking fibers;

introducing boric acid into said aqueous suspension;

depositing said aqueous suspension onto a sheet-forming fabric to form a wet web, said boric acid being introduced into said aqueous suspension prior to depositing said aqueous suspension onto said sheet-forming fabric; and

through-drying said wet web by passing heated air through said wet web.

Claims 24 and 25 have been cancelled.

New claims 26-28 have been added.